

# COMPUTER WEEKLY

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## Briefing

### ICL bonuses

In June

**PRODUCTIVITY** bonuses are to be paid to ICL employees in June, reflecting better trading performance during the first three months of this year. The company says it is unable to say yet just the exact percentage will be, as this depends on the half-year accounts which have to be agreed by the board and presented to the Stock Exchange before being announced. But it is aimed to have the bonus in the next pay packets.

No bonus was paid in the last quarter of the company's financial year, October in December, because trading did not achieve the required 10% increase.

### Jobs galore

A SURVEY by the US Department of Labour predicts that there will be jobs for half a million programmers and systems analysts in the US by 1985, not without change in job functions brought about by technological advances. While the market for computer jobs will expand faster than most other occupations, the rate of growth will slow down as software becomes more usable by non-technical people, the report says.

### TI price cuts

PRICE cuts of between 7% and 18% have been made by Texas Instruments on its Series 700 VDUs, model 810 impact printer and model 742 programmable terminal. In addition, TI is offering improved discount terms for its model 743 printer terminals and a changed leasing structure across a range of its Series 700, Silent 700 and Omni 800 terminals.

### Benchmark trials

AN ICL 2800 at the UK Atomic Energy Authority at Risley, Cheshire has passed benchmark trials with a claimed performance improvement of over 10 times compared to an ICL System 4/72, which it's replacing. The tests involved a mixed batch workload and supporting software.

### Viewdata delays

INDUSTRIAL action by the Post Office Engineering' Union, which started last October, is now holding up progress on viewdata systems as well as delaying the installation of telephone exchanges and other equipment valued at more than £1 million.

### Fairchild's reply

In answer to the Data General lawsuit in the US dealing with the misappropriation of trade secrets, Fairchild has asked the Chancery Court in Delaware to dismiss the case. The case involves the Fairchild 9400 16-bit micro introduced in January 1977 as a Micro Nova software "cockpit", and introduced a year later with revised software.

## SRC calls for £5m research

A PANEL of the Science Research Council has proposed that a collaborative programme of research in computer science and applications be initiated, costing about £5 million over the next few years.

The panel, chaired by Derek Roberts, managing director of Plessey Microsystems, wants the programme to cover three main areas, new applications, education, and new technology, and the views of industry and the universities are being sought so that a firm programme can be drawn up.

The new applications being considered include the industrial impact of image processing, automatic inspection, industrial robotics, and speech recognition. The applications must be important and urgent.

As an alternative to these separate topics, the SRC panel thinks that a single large national project could be set up aimed at the solution of a problem such as disaster prevention, traffic control (air or ground), the wired city, or the automated home.

The panel would like to work in new technology to be based on a single large project, either hardware or software, that could benefit all sectors of the industry. An example would be the development of a complex of different computers all co-operating with each other. Such a design would involve several new technologies such as fast hardware (gate arrays and hybrid construction), new memories (bubble and laser) and narrow communication channels (optical fibres).

Fault-tolerance both in hardware and software would be an aim in this system, possibly by having a distributed operating system with no master computer.

A less ambitious alternative would be the development of a new 32-bit mid-range computer suitable for a range of scientific and commercial applications.

One useful contribution to education that the panel can see would be the development of a cheap computer for schools, costing as little as, say, a film projector.



Roberta . . . call for more collaboration in research.

## E-series data leaked in Japan

AN investigation by IBM has revealed that over-enthusiastic Japanese salesmen have been giving potential customers advance information on the company's forthcoming E-series, which is to replace the lower end of the 370 range. IBM in statement said it had taken "appropriate action."

The salesmen have apparently been telling customers that the new line will be announced shortly, and that it will offer double the performance of the existing 115 and 125 at about the same price.

This follows details of the E-series published in Computer Weekly (December 8, February 16).

Meanwhile, the US Justice Department has finally concluded presentation of its antitrust case against IBM, three years after the trial opened. IBM has begun its defence, and the case is expected to run well into the next decade.

Commenting on the case at the annual shareholders' meeting, IBM chairman Frank Cary said the US government wanted IBM to introduce fewer new products and charge higher prices.

### Olivetti-Stack talks

DISCUSSIONS are under way between Olivetti and Stack, the German-based company formed by ICL, Nixdorf, Control Data and Plessey to specify and place bulk purchase orders for semiconductor components.

## Siemens to sell Fujitsu systems

By Tim Palmer

THE Japanese challenge to IBM in Europe has taken a major step forward with an agreement which allows Siemens to market the Fujitsu M-1801 and M-200 large-scale mainframes. In return, Fujitsu is to buy, on an OEM basis, the Siemens NJ-2 laser printer, which ICL is also buying.

The agreements have been reached after two years of intensive negotiation, and were foreshadowed in Computer Weekly earlier this year (CW, February 2).

The agreement allows Siemens to market the Japanese machine in most European countries. The UK is covered by the agreement but Siemens has not yet decided whether it will enter the UK mainframe market.

Siemens will initially sell the machine with the Fujitsu

OSIV/F4 operating system, which is claimed to offer all the facilities of IBM's MVS and to provide between 20 and 40% better throughput than comparable machine (CW, March 2).

The M-series machines include the full IBM 370 instruction set and 10 additional instructions.

The M-1801 approximately matches the power of the IBM 3032 or 370/108. The M-200 is a multiprocessor system which in its maximum four-processor configuration is about three times as powerful as a single processor and a formidable five times the power of a single processor 3032.

The IBM two-processor version of the 3033 will approximately match the power of a uniprocessor M-200; but IBM's machine will not be available until the end of next year, whereas the Fujitsu machine is due for autumn delivery.

Rather than add microcode to its 470 processors, Amdahl is providing software support for IBM's MVS Systems Extension, and says the facility will be available later this year. The company will thus retain full compatibility with the IBM operating system. Amdahl has also cut memory prices on the 470/5 and V/8-II by about 20%, reducing overall system cost by about 5%. Memory will in future be offered in minimum quantities of 2 Megabytes.

## IBM users 'satisfied'

AN OVERALL satisfaction with the quality of IBM customer engineering is indicated in the results of a survey of 700 IBM users carried out by the IBM Computer Users Association.

Relations between the user and customer engineer manager was the only area where some improvements were seen to be required, and the CUA has recommended that more regular meetings be held between users and CE managers.

Users were asked 18 questions about IBM maintenance, including mean time between failure, how co-operative IBM's engineers are, parts availability and time to fix faults.

Users were asked to assign a mark out of ten for each category and the overall average worked out at seven out of 10, equivalent to very satisfactory.

The results were markedly more favourable to IBM than the results of a similar survey carried out by the CUA in 1974. The results of the most recent survey were formally presented to CUA members at their annual conference of computing interest.

### PRODUCTION PROBLEMS

COMPUTER WEEKLY is still restricted in size because of production problems beyond our control, but our tight packed pages still carry all the essential news for and about the computer industry and its customers. Ian Sankoff of the technical staff union TABS, writes about the role of computer people in the economy of Britain (Page 4), and in 'Op Spot' Bernard Allen looks at the kind of union that would best serve the interests of operators staff (Page 13). Tim Palmer previews the big Brussels show, Computer Europe (Page 18), and Roy Johnson looks over the programmes of Eurocomp '78 (page 14). There's also Softwings' file, Programmer Notes, Letters to the Editor, Hot 100, The Fine Art, Computer Reference, and the final byte of the Hazardous File's 14-part strategy. But he will be back soon to continue his fight against the system. All this as well as all the up-to-the-minute news of the industry.

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# COMPUTERVIEW

## Unions and computer people

COMPUTER people are increasingly looking to unions to further their interests and protect their rights. But are the established trade unions geared to meet the special needs of computer staff?

In Opt over the past few months, Bernard Allen has reported a growing mood among operators who are looking for organisations to join which would help them negotiate for better terms of employment.

Many operators said that only a separate operators' union could be of any real benefit, because they felt existing bodies did not understand or care about their special problems.

As reported this week (page 13), it seems as if operators studying the problem are beginning to realise that they will need to work within the existing framework. Many unions are beginning to become aware of the special needs of computer staff and already know the tricks of the industrial relations trade.

And on page 4, a leading trade union activist in the computer industry, Ian Benson, makes the point that computer people could have a vital role to play within the trade union movement by providing informed advice on the social, industrial and economic impact of information technology.

As Benson points out, the "humanising of technological change" is one of the major issues of our times.

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## FOCUS

## Bring out the systems analyst

IT is no exaggeration to suggest that the success or otherwise of any computing system depends largely on the relevant input. Probably more applications have come unstuck through faulty input design than any amount of human interface, incompetence or involvement.

However, Focus believes that Tom Gilb (CW April 20) has got himself looped and buffered, if he really believes that little progress has been made in the past 42 years in respect of input coding techniques.

For a start, ledger keepers of 40 or so years ago, would probably be more familiar with the Morse code than data input procedures. PAYE and National Insurance codes had not even been devised in those earlier generation days.

Input developed very much along traditional clerical methods. It was usually the computer which had to adapt.

Unless input forms and formats are logical and traditional, resentment reigns supreme.

It seems it is the system designer who is most in need of education and training. Not, however, at the familiar "standard" training of NCC origins, which are noted for producing Identikit analysts.

What should be urgently promoted are system courses which result in independent thought and action. Few applications fit into defined and approved structures. Each and every project should blow preconceived notions.

Somehow, the system analyst, especially those with foresight and aptitude, must become involved at the early stages — not as in all too typical, to be released on to the scene long after the decision has been made and time-scales set.

The presence of the analyst should be extended beyond that of attending initial meetings. He should be present at all sessions involving user applications and services. In fact, every sales team should be equipped with its quota of analysts. It is all too easy for the

## Ten years ago...

COMPUTER WEEKLY  
MAY 2, 1968

SUSPECTED piracy of the Geddes real-time control system was being investigated by BOAC and IOM, with a view to bringing a civil action... GEC at France and Telsis of Czechoslovakia signed an agreement for the manufacture of the Gemini 140 by the Czechs... The GEC's National Data Processing Service was up and running, and began to take in work from customers outside the Post Office... The "desperate shortage of trained personnel" continued. Keele University was offering £1,105-£2,270 for a senior research assistant to provide hardware and software support for a PDP/8... The IBM 30, the first in GEC's range to the integrated circuits, was announced at the Hanover Fair.

"There are problems like being pressured to deliver

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## Defective memory parts 'sold in UK'

DEFECTIVE memory components that evaded the scrapping process at the US manufacturers, Advanced Micro Devices, may have been sold in this country.

The components, 2K bit EPROMs of the 1702A type, came to light through two small British companies, one of which is the official part having greater numbers than the former.

Given the power structures existing within the country, it is clear that the trade unions will bear the brunt of assisting or playing a key role in blocking any changes.

Computer Weekly cannot advise any individual on whether or not to join a union or which union to join — that is a matter for the individual.

Computer people are not a breed apart from the rest of the world, except that they are generally lucky to be in a relatively lucrative career — more so on the systems than operations side — and have little short-term fears of unemployment.

AMD is currently investi-

gating how it escaped the scrapping process at the US manufacturers, Advanced Micro Devices, may have been sold in this country.

It bought some of the components from one of the UK's official distributors, one of whom, Cramer, has had its contract terminated. In the UK Cramer also handles AMD parts, but the British company has not been disenfranchised.

THE privacy safeguards of a new child health data system are regarded as inadequate by the British Medical Association, which may recommend doctors to refuse to co-operate in the use of the system.

Plans for the "Standard Child Health System, Pre-school Health Module", which would store medical and personal information about all children in England and Wales from birth to age five, have been criticised severely by the BMA's Ethical Committee, which claims that the safeguards on privacy will not be sufficient.

Nevertheless, the Child Health Computer Committee, which consists of representatives of the Department of Health, the NHS, and several medical associations, has decided to go ahead with the system, while issuing a statement of the ethics on which development of the system would be based.

A spokesman for the BMA said that the principles were fine as far as they went, but they did not answer the questions raised. There were no guarantees that what they said would actually happen.

The Ethical Committee will be meeting again to decide what to recommend to doctors.

To celebrate the event and maybe persuade a few other

traders to follow suit, Logabix installed on LX4500 demonstration system in the Apple and Pears pub in the vast concrete end street complex.

Seen here is one of the few

remaining "charmers" from the old market. Disk Turpin, who is trying his hand at the keyboard of the LX4500, helped by an amused

Geb Andrews, the Logabix Croydon branch manager.

FACED with increased overheads in their modern and expensive home the traders of New Covent Garden market are seriously looking at computers as a way of reducing their costs, and one firm, Semley Springer, has taken the plunge and installed a Logabix

LX4500, helped by an amused Geb Andrews, the Logabix Croydon branch manager.

The new mid-range machines are the B6808, 6812, 6818 and 6822. They feature 16K-bit MOS memory chips and replace the four existing models. Purchase prices of the latter have been cut by 18%. The improved memory boosts performance by 40%. The top machine, the B6822 consists of a minimum of two B6812 processors, and can include up to four.

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"HUMANISING technological change has been the business of the Labour movement from its inception." That is the claim of Ian Benson, divisional organiser of the TASS administrative and supervisory section of the Amalgamated Union of Engineering Workers, and chairman of the NEDC Computer Menpower committee. Benson, one of the most active trade unionists in the computer field, explains in this article why he believes that, in taking up

the challenge "issuing from the croquet lawns of Huddersfield Park" — venue of last year's ACM/Computer Weekly conference on "Can computers save Britain?" — the collective voice of computer professionals allied via the trade

WHEN software houses were nothing but a twinkle in the eyes of budding entrepreneurs, TASS, the Engineering Staff Union, was learning to deal with the introduction of computers into the manufacturing process.

Humanising technological change has been the business of the labour movement from its inception. Indeed, it owes its very existence in part to the activities of small groups such as the followers of General Ludd, who opposed the introduction of the factory system itself at the turn of the 19th Century.

The Luddites had considerable public support, as E. P. Thompson noted in *The Making of the English Working Class*: "What was at issue was the 'freedom' of the capitalist to destroy the customs of the trade whether by new machinery, by the factory system, or by unrestricted competition, beating down wages, undercutting his rivals and undermining standards of craftsmanship."

Although the Luddites were eventually defeated in their campaign of direct action to resist the spread of the factory system, their activities were indirectly an influence on the widening of the franchise, and a century of progressive legislation on the formation of trade unions and the regulation of conditions of employment.

As the labour movement has developed, its attitude towards technological change has had close links with the prevailing level of unemployment.

As late as 1965, the TUC could write: "The contrast between the present day and the position

# Can computer staff save Britain?

By Ian Benson



a century ago is dramatic. Any trade unionist of that time with the ability to foresee the technological changes that had taken place in the past century, might well have feared that all the goods and services produced a hundred years ago could have been supplied with modern techniques with a fraction of the 1870 labour force. In fact, scientific and technological change has made many new products possible and our requirements have increased at least as fast as industry's ability to meet them."

Now, with the Manpower Services Commission proposing a shortfall of jobs of some 2.5 million in 1981, attention is once again concentrated on the potential of technology to destroy jobs, and it is the computer which is bearing the brunt of the scrutiny.

The European Metalworkers Federation, which groups Western European engineering unions, adopted a document on the development of data processing last November which stated, "The EMF in no way shares the optimism of certain governments, employers and the European Commission that the new technologies in the field of informatics will have a favourable effect on the employment situation in general and the number of jobs in particular."

The TUC has gone further and expressed concern about the

political parties that "mass unemployment is the result of ineffective or erroneous economic and social policies or the failure of the institutions concerned with those policies at both, rather than of technological change itself."

At the sharp edge of the technology, computer staff themselves have seen this happen. In recent years they have seen a varying degree of de-skilling introduced into pay structures has been the difficulty it has caused to career progression.

As staff become expanded to forces which their shop floor colleagues experienced with the introduction of mechanical

Chad is on holiday. Down-time will be back soon.

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# GILB'S MYTHODOLOGY

## Structuring primarily for machines, not people

WHY have you considered "structured programming"? Perhaps to avoid misinterpretation? I should use the term structured coding? Better still, to emphasise the fact that the logical paths are organised in some special manner, I shall use a new term, "structured logicware."

In any case the subject of discussion is on various ways of structuring program logic for the same functional program, so as to produce various desirable effects.

My initial question is, therefore, which effects do you expect?

The general expectation seems to be that somehow the programs become more readable, and thus more maintainable. As I have indicated earlier (CW Jan. 12 and

Feb. 2) these expectations do not seem to correlate well with objectively measured facts. My personal opinion is that structured programming is not yet evaluated in a proper context. We are interested in it for the wrong reasons (human comprehension of program texts), and we go about getting SP in the wrong way.

I am certain that the dominating reason why SP will become a requirement for all serious programming projects is so that logicware can be reasonably thoroughly tested, and retested after maintenance changes.

This is not widely appreciated today, since so few of us even have a primitive test completeness requirement (like proof that all instructions are

tested at least once, or if they loop, twice).

When we realise that a 50-line program, which has 25 consecutive IF THEN constructs could have as many as 33.5 million distinct control paths then we see that thorough testing of all these distinct control paths is not even practical using machine generation of test cases and machine execution and evaluation of them.

My hypothesis is that we must use machines to "structure" our program control logic, and we must use machines to evaluate the degree of structuredness of such logic, to evaluate the degree of testiness, to construct test cases, and to evaluate the validity of those test cases.



## SOFTWARE FILE-1

### Adapso in legal clash over US patent refusal

A FURTHER round has been fired in the continuing battle in the US to obtain legal protection for software.

Adapso — the Association of Data Processing Service Associations — has again filed an "amicus" brief with the US Supreme Court supporting the position that computer software should be patentable.

Adapso's latest brief was filed in the case of Dale Flook versus the Commissioner of Patents and Trademarks. The action arises from the Commissioner's refusal to grant a patent to software developed by the Atlantic Richfield oil company.

The brief noted that "software is a new technology that is today viewed as the most critical and important element of a computer system. As in any new technology, for it to grow and compete, it needs all the protection due under the law. Adapso asks the court to treat software technology equal to hardware technology — no better and no worse."

An amicus brief is a device whereby a person who has no right to appear in a legal suit is nonetheless allowed in to introduce arguments, authority, or evidence to protect his interest. This is the third occasion on which Adapso has supported a Supreme Court patent action in this way. Both earlier suits were rejected.

McCabe also found that several programmers who frequently wrote code in the 40 to 50 complexity range, claimed there was no other way to do it. He also suggested that he could evaluate a year's worth of a single programmer's Fortran code in about 20 minutes, using the Flow complexity measuring tool, while at the same time noting that it is not really practical to expect programmers to do such complexity evaluations manually.

McCabe reminds us that structuredness is indeed a measurable concept, even automatically so — for that may be the only practical way of doing it. He also reminds us that programs of any complexity are "reducible" to some lower limit of simple logical flow, by a systematic set of rules.

The next obvious issue is whether or not we can get a machine to simplify our program logic structure. Indeed we can. The most prominent attempt is the restructuring engine for Fortran (by Caltech Farber and Gordon, Inc. of 750 East Green St., Pasadena, Calif. 91101) which in addition to all sorts of elegant source code identification and analysis tricks, actually rewrites any old Fortran (Standard) so that the logical paths are simplified.

This is simply a logical extension of the concepts of "compiler," "optimising compiler," and other such side I have on my desk the initial listings of the first stages of a similar product for Cobol made by Don Dzambra at Bell Labs, Piscataway, N.J., where the work for the moment is "on exposing the structure of the original Procedure Division," but where the objective is automatic restructuring.

There are many other developments which suggest the same conclusion.

I am all for minimising the work process of the programmer. Top of the segment I can transfer the burden to my computer. That's going to do it.

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be suitable, or alternatively a completely new legal form.

The applicability of the 1975 US copyright laws to software is still uncertain, pending Compt's final recommendations to Congress (Software File, March 23).

One of those strongly in favour of patent protection is Martin Goetz, chairman of Adapso's software protection committee and a senior vice-president of ADR. Goetz said that "alternative means such as trade secrets and copyrights are both inadequate and inappropriate to the task... patents would permit software companies to have the same protection as hardware manufacturers."

As in its past filings with the Supreme Court, Adapso continues to maintain that software patents would provide important innovative talent, would stimulate technical progress and would protect an industry composed predominantly of relatively small companies.

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According to Jerome Dwyer, executive vice-president of the association, one object of filing briefs was to document Adapso's position in anticipation of future applications to change the law.

Although all possible means of protection were still being investigated, he said, many members thought that that offered by copyright was not adequate. Some combination of a patent with a copyright might

achieve the desired result.

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## SOFTWARE FILE-2

EDITED BY PETER HEWITT

### Easit method of Euro classification

A NEW method for the classification of technical software products has been devised by a European study group. The guidelines established represent the first fruits of Easit, which earlier this month celebrated its first birthday with a conference in Paris.

Captain Grace Hopper during her visit to London last month (Software File, March 18).

The DG/3 working group includes two people from each member state and also has close links with ECMA, ECSA (European Computer Services Association), and the newly-formed Conference of European Computer User Associations (CW, March 2 and 16). Among other things, the group is studying the question of Cobol portability within the community (CW, November 24, 1977).

As part of its activities, Easit established six working groups to examine various aspects of software practice. Two of these have now reported: that working on program documentation and that considering software classification.

Primerly the work of Keri Zelle, of Graz, Austria with support from the European Computer Program Institute (Europc) of Ispra, Italy, the new classification scheme is potentially of great significance. Most attempts in the past have been either one-dimensional classifications (eg Shere/ACM) or key-word systems.

Zelle's system, christened EPOS (Extended Problem Oriented classification Scheme for scientific software), is an elegant compromise between these approaches and could be used by a program librarian in either way.

An ambitious system, which currently contains some 4,400 terms, it now urgently needs critical comment from active workers in this field.

The working group on software documentation has turned in a massive report produced on its behalf by Paul Wolfgang of Mannheim. An extended critique of 26 different systems of program documentation, it includes a 52-page glossary of software terms. Both reports will be published in the near future.

A BRANCH office in Leeds has been opened by CRL-Abacus, complementing existing offices in London, Coventry, and Manchester. The Leeds office, has an initial staff of ten.

UK distributor sought by Swedes for Pathfinder

A DISTRIBUTOR in the UK is being sought by Stockholm software house Detenalyis for Pathfinder, a diagnostic tool which traces the execution of each path in an ANS Cobol program (CW, August 28, 1974).

One aspect of this work is to encourage member states to support and implement standards through their procurement policies. This facilitates the enforcement of standards.

Pathfinder analyses the flow of control down to the most detailed logic level. It thus offers facilities superior to those of the Cobol TRACE option, which does not analyse below the level of paragraph names.

The package uses a preprocessor to locate each branch point in a program. At each node, a flag mechanism is inserted. After normal Cobol compilation, the resulting object code is linked together with a Pathfinder execution supervisor and dynamic reporting module.

During subsequent execution, the program paths taken and executed and non-executed processes. It also generates frequency tables for those processes executed.

According to the developers, the main use of the package is to enable project leaders to assess the completeness of program testing. It can also be used to locate frequently-executed procedures as a guide to optimisation, or to locate unauthorised code in EDP auditing.

Written in Cobol, the package will run on any machine with an ANS Cobol compiler. It will sell for around £1,400.

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## PEOPLE

### Reorganisation and expansion at Wang

APPOINTED managing director of Wang Electronics is Herbert Koenig, formerly manager of the Frankfurt office. He will have special responsibility for computer division and the service, support and admin departments. He succeeds David Allott, who had taken over the responsibility for Wang's dealer network in north-western Europe.

The word processing division of Wang has moved from Northwood to 27 Berkeley Square, London W1, tel: 01-421 4241. Raymond Redpath, formerly with Wang Europa in Brussels where he was responsible for building the North-West Europe dealer network, has become general manager of the division.

Reorganisation of Wang's computer division has resulted in the creation of two new branch offices. The Southern region branch is based at the HQ of Wang Electronics, Argyle House, 101 Stretford Northwood Hill, Manchester M16 1LN, tel: Northwood 28211, and managed by Michael Pegg, formerly of British Olivetti.

A regional office at Myton House, Railway Terrace, Rugby, Warwickshire services the Midlands area, and the manager is Frank Pipe, the company's top salesman in 1975 and 1976.

In the expanded office at Harrogate, Ian Campbell becomes Northern region manager. He was previously a computer analyst.

Tony Nicholson has joined BOC Datacoms as financial director. Formerly he was financial controller of the Heathrow Hotel.

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Fisher Gumbrecht

Alex Fisher, formerly European marketing manager of Datum, has been appointed sales director of Baytel.

Bernard Fisher becomes corporate vice-president for OEM products with Datum 100 in the US. Previously he was managing director of Data 100 in the UK.

John Maund has been appointed director, industrial engineering and manufacturing for Sandard Telephones and Cables. He joins from Lucas Electrical where he was director and general manager of its electronics and systems division.

Rejoining STC, Peter Morcombe becomes general manager of the new optical systems division. Until recently he was manager of production improvement for ICL's product development group. Harry Roper, previously assistant chief of garnish staff (operational requirements) at the Ministry of Defence, becomes manager of military and public sector marketing with STC.

Four problems had to be solved by writing programs using Interdata Fortran V.

Tony Wood-Smith, press relations manager for Honeywell's computer in-work information systems interests, has been appointed public relations director in succession to John Acherlind who has transferred to the US.

David Willis of Gould Computer Systems has been promoted from project manager, payroll systems to director responsible for the mainframe division.

Dennis Ellary, former assistant director and head of operational services with Kingday Smith, has become a senior consultant with Tred Computing Systems.

• DIARY is on page 13

### BCS Nottingham Business Game

THE East Midlands Business Game organised by the Nottingham branch of the BCS was won by the team from John Player and Sons.

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News of the enhancement

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"Because we are taking on

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## REPORTS FROM HANOVER FAIR BY KEITH JONES AND MARTIN BANKS

**Suppliers seeking outlets in the UK****A focal point for microsystems**

THIS year's Hanover Fair turned into something of a European focal point for the microelectronics industry, with several manufacturers choosing to show new products.

Toshiba demonstrated its T400 personal computer system. It is not yet on sale, not even in Japan, and the two examples on the company's stand were both prototypes.

Almed primarily to a similar market to such equipment as the Apple II, the T400 comes with between 8K and 16K bytes of ROM, in which Monitor and Basic software reside. The minimum 4K bytes of RAM can be expanded up to 48K bytes, to cope with colour graphics work.

Two versions of graphics are available, offering either a standard resolution of 63 by 40 or a high resolution of 256 by 160. Both have 16 selectable colours.

The T400 hardware package includes cassette interfaces of both 1200 baud and the Kansas City 300 baud standard, plus the option of a dot printer, floppy discs and an S-100 bus Interface board.

Expo accounted for 80% of the £16 million turnover chalked up by DRE in its 77/78 financial year which ended on March 31.

A VISITOR to Hanover Fair was the Duke of Kent who made a whistle-stop tour of the seven UK exhibits supported by the British Computer Trade Board. He talked to firms on the joint stand sponsored by BDT and the Business Equipment Trade Association, including Data Recording Equipment, the newly formed subsidiary of Data Recording Instru-

ments.

The Duke, who is vice chairman of BOTB, is seen here discussing the DRE 3200 fixed disc drives with Ulrich Virkus, sales manager of DRE's German subsidiary, based in Munich.

Expo accounted for 80% of the £16 million turnover chalked up by DRE in its 77/78 financial year which ended on March 31.

The Stuttgart firm, DDC, which is aiming for a turnover of DM100 million this year, manufactures a family of three interactive screen based systems, the DDC System 110, 220 and 440. The 110 is configured around a Motorola 6800 microprocessor and uses floppy disc storage, while the top end 440 machine comes with a Data General Nova 2 processor with up to 280 Megabytes of disc and up to 20 display terminals.

The 220, launched at Hanover, fits between the 110 and 440 in performance and is configured around DDC's own Nova compatibility 16-bit processor made up of four 4-bit slices.

**European launch for 2200VS**

WANG used the Fair as the launch pad in Europe for its 2200VS virtual memory minicomputer system, first introduced in the US last year (CW, October 20, 1977).

It is available in two main configurations: the WCS80 which can handle up to 10 ter-

mins, and the WCS80 which can handle up to 23 terminals. The main memory for each is a minimum of 64K bytes, expandable up to 256K bytes in 64K increments, and a total of 2,300M bytes of disc storage can be used. Prices for the system vary from \$47,000 to \$300,000.

Known as Superclerk, the system is intended to fit the need for what Albol call "a modern filing system." By using a Burroughs plasma-panel display, rather than a video terminal, the system provides a "docket" sized page format, aimed at stock control and production control applications.

Superclerk costs £7,800, including operating software that controls the formatting of pages and their storage and recall from floppy disc. A total of 1,008 pages can be stored on each disc.

The new joint venture company formed by AMD and Siemens, Advanced Micro Computers, got its first exhibition airing since its formation. On show were two new single board computer systems that are among the first products to carry the AMC banner.

The first is the SKC 85 which is based on the Siemens version of the Intel 8085 processor, and comes complete with between 2K and 4K bytes of ROM and 512 bytes of RAM. It uses a standard

Intel 8085 processor.

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Superclerk costs £7,800, including operating software that controls the formatting of pages and their storage and recall from floppy disc. A total of 1,008 pages can be stored on each disc.

The new joint venture company formed by AMD and Siemens, Advanced Micro Computers, got its first exhibition airing since its formation. On show were two new single board computer systems that are among the first products to carry the AMC banner.

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The new joint venture company formed by AMD and Siemens, Advanced Micro Computers

# Eurocomp78

## Congress theme to be Information Dynamics

Keeping track of all the prices, currency exchange and discount details in a super brokerage can be a tricky business — see the super merchant A. S. Pigott and Son, here swanning a Data General Nova 3 minicomputer. This replicates a Mitsubishi Melcom VRC system and features 84K of main memory, a 10 Mbyte disc drive, five VDUs, and a line printer. Among its male apprentices are credit limit and sugar stock level and price checks. Our picture shows A. S. Pigott (right) and Geoffrey Pigott, the managing director.

### 45,000 at work on computers

A TOTAL of 35,000 people were employed in the manufacture of computers in England and Wales, and 3,000 in Scotland, in June, 1976. The Employment Under-Secretary, John Golding, told the Commons.

Replies to Gordon Wilson (Scot. Nat.), Golding said that more up-to-date provisional estimates for Britain as a whole showed that the industry employed a total of 45,000 people in February, 1978.

### on show at Eurocomp... the brilliance of TPS



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### TPS stand 11 Eurocomp

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For further information telephone 01-8771251

RORY JOHNSTON LOOKS AT THE PROGRAMME FOR THE EUROPEAN COMPUTING CONGRESS TO BE HELD AT WEMBLEY NEXT WEEK — AND AT SOME OF THE PERSONALITIES INVOLVED . . .



CHRISTOPHER LAYTON, director of science and technology at the EEC . . . to chair an International user forum.

CHRISTOPHER LAYTON





# RECRUITMENT SERVICES SYSTEMS AND PROGRAMMING

## TRAINING OPPORTUNITIES FOR EXPERIENCED PROGRAMMERS

- \* MINIMUM 12 MONTHS' EXPERIENCE
- \* WIDEN YOUR COMPUTER KNOWLEDGE
- \* PROGRESS TO ANALYSIS AND PROJECT RESPONSIBILITY

### CHIEF PROGRAMMER

HANTS  
Our client is a major British company with business interests in many areas. Retaining IBM 370 168 and using mainly PL/I, they seek chief programmer with demonstrated programming exp. Co offers:

- \* Responsibility for program loan
- \* Wide range of projects
- \* Secure future
- \* Flexi hours, Annual Bonus
- \* Salary to £7,000

Ref. 1438

### JUNIOR PROGS CITY/SE

A challenging career awaits you if you have experience on any IBM high level language to join a highly successful team within leading national organisation with IBM 370 hardware. Co. offers:

- \* Training in PL/I
- \* Learn Database & T.P.
- \* Room for growth and promotion
- \* Development of new projects
- \* Salary £4, 600

Ref. 1150

### SRN ANALYST/PROG ESSEX

Communications company working on a global scale seeks clear, logical thinking analyst programmer for their ICL 1900/2900 Series equipment. Co. can offer:

- \* Control of small development or support projects
- \* Supervisory experience
- \* Full scale of projects ranging from purchasing to financial modelling
- \* Subsidised restaurant, sports and social club
- \* Salary £5,500

Ref. 1153

### BURROUGHS PROGRAMMERS LONDON

Challenging opportunities exist for COBOL programmers at all levels for B3700 hardware. This well-established company has opportunities for programmers with initiative and drive for their installations in central London and Surrey. Co. offers:

- \* Excellent working environment
- \* Excellent career opportunities
- \* Opportunities to go to minis
- \* Flexi time, free restaurant and bonus
- \* Salary to £6,000

Ref. 1387

### IBM PROGRAMMERS LONDON

Multi-national company retaining large IBM 370 equipment requires programmers with at least 18 months' Assembler experience to join highly professional team. They are currently developing a major sophisticated on-line system. Co. offers:

- \* Highly progressive organisation
- \* Continued development with a well planned schedule
- \* Good promotional prospects
- \* Excellent benefits including cheap travel
- \* Salary to £8,000

Ref. 1280

### PL/I PROG KENT

Why travel to London when opportunities like this exist? PL/I Programmer, this well-known national company with large IBM 370 equipment can offer you:

- \* Security in a very well-established and highly organised O.P. division
- \* Training in IMS
- \* Prospects for systems
- \* Salary £4,800

Ref. 1218

### HONEYWELL PROGS

LONDON  
The success rate of this large manufacturing company has led to the need for additional analyst programmers. The right applicant will join a professional and enthusiastic team utilising Honeywell mainframes and preferably had OS 2000 experience. Co. offers:

- \* Training in IMS/BOMP
- \* Opportunities for using MINIS in near future
- \* Cheap Company Product
- \* Plus modest offices
- \* FREE restaurant 4 weeks' holiday
- \* Salary to £6,000

Ref. 1412

### NCR PROGRAMMERS LONDON

Our client, an international company covering a large range of NCR mainframes and minis are seeking COBOL programmers at all levels. They are involved in present in a variety of commercial, financial and industrial projects. Co. offers:

- \* Training opportunities for IBM, ICL or UNIVAC COBOL progs.
- \* Extensive training on new machines
- \* Career development in systems
- \* Excellent company benefits
- \* Salary to £6,000

Ref. 1327

### WHY NOT FIND OUT WHAT IS AVAILABLE IN YOUR AREA?

This is only a small selection of posts we have available at present. If however, you don't see anything to suit your requirements please do not hesitate to telephone us. We have a wide choice of jobs at varying levels throughout the U.K.  
For the above positions -- please telephone 01-734 0152/2010/(24 hours) quoting the respective reference number, or write to our London office.

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### IBM CICS COBOL

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Rates are to viewable and contracts renewable. Telephone: Perry Butler or Melania Fawkes, 061-933 8341/5, 520 Royal Exchange, Manchester.

## KNIGHT PROGRAMMING SUPPORT LIMITED

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- \* LEARN NEW LANGUAGES, NEW COMPUTERS
- \* INCREASED EARNING POTENTIAL

### IBM PROGRAMMERS SOMERSET

Challenging opportunities exist for COBOL programmers with preferably ASSEMBLER, et al level, to work on a variety of projects. Co. can offer:

- \* Excellent working conditions
- \* Wide range of projects
- \* Training in OL/I
- \* Relocation expenses
- \* Bonus and productivity scheme
- \* Subsidised restaurant and sports and social club
- \* Salary up to £5,200

Ref. 1442

### IBM ANALYST/PROGRAMMER SURREY

If you have 2½ years' IBM COBOL experience apply now for this fantastic opportunity. Co. offers:

- \* Travelling Europe, Middle East and Africa
- \* Installing, designing and the development of new programs
- \* 1st Class travel and accommodation
- \* Long Term Career prospects
- \* Excellent company benefits

Ref. 1488

### MINI PROGRAMMERS SURREY

World wide organization are recruiting people with any MINI ASSEMBLER experience for OEC POP installation. Co. offers:

- \* Extensive training in up-to-date technology
- \* Excellent career opportunities
- \* Training in RSX, RTT and RSTS
- \* Salary £8,000

Ref. 1087

### JUNIOR PROG HOLLAND

Very rare opportunity for ambitious person wanting to work overseas. If you have initiative, good education and approx. 6 months' COBOL, PL/I or experience of other language then ring NOWI Co. offers:

\* Excellent training within world-wide organisation using modern technology

\* Responsibility for maintenance but will move into development needs

\* Centrally based—Amsterdam

\* English speaking country

Ref. 1448

### TRAINEE MINI PROGRAMMER LONDON

Our client, a major and successful concern, wishes to strengthen its European programming team. Retaining IBM 370 hardware under DOS/V. The Co. seeks ambitious persons with PL/I experience and OL/I, CICS or COBOL being an asset. Co. offers:

\* Involvement in development of new and exciting projects

\* Opportunity to work with an expanding organization operating world-wide

\* Centrally based, AMSTERDAM

\* Salary 40,000 guilders (£10,000) cost of living allowance and relocation expenses

Ref. 1212

### PL/I PROG HOLLAND

Our client a major and successful concern, wishes to strengthen its European programming team. Retaining IBM 370 hardware under DOS/V. The Co. seeks ambitious persons with PL/I experience and OL/I, CICS or COBOL being an asset. Co. offers:

\* Involvement in development of new and exciting projects

\* Opportunity to work with an expanding organization operating world-wide

\* Centrally based, AMSTERDAM

\* Salary 40,000 guilders (£10,000) cost of living allowance and relocation expenses

Ref. 1480

## CONTRACTS: SOUTH ENGLAND & OVERSEAS

### MANY CONTRACTS ALL MACHINES!!!

### PLEASE CONTACT

#### IBM PL/I DDS Learn Librarian Easitrieve

#### IBM PL/I DOS Commercial Application

#### IBM PL/I CICS

#### IBM 37D DC/DB

#### IBM PL/I DDS. VS. Long Contract.

#### IBM DOS Total D/Base

#### IBM CDBDL ISP

#### IBM SYST 3/37D CDBDL

#### BURRDUGHS 37D0 or 17D0 CDBDL Gen. Ledger

#### NCR 299 399 499 COBOL

#### NCR 399 Financial Applications URGENT

#### DATA General Nova COBOL

#### POP RSX11D Macro 11 Exp. of APS4

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#### Project Leader IBM PL I DOS

#### Burroughs 67D0/77D0 CDBDL

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London £21D+

Herts £24D

Paris £275

Paris £ Ex Rate

Brussels £ Ex Rate

Sussex £2DD + pw

Saudi Arabia £300\* pw. acc + exp.

City £190 + pw

City £2D0 pw

Essex £25D pw

Herts £230 pw

Her £200 + pw

Paris £350 pw

Surrey £22D pw

Telephone: Dave Hayton or Christine Kay

## KNIGHT PROGRAMMING SUPPORT LIMITED

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The company operate an IBM 370/138 installation with a teleprocessing network. Production systems access a database and this is an area that is certain to be expanded.

An Analyst, with experience of computerized production control is required. The position may also interest those currently employed in the user area who would be interested in using their technical expertise in the computer industry.

The successful candidate will be responsible for the further development of the company's production control systems. This will probably involve requirements planning and capacity planning in the short term and may well extend to cover mini-based shop floor data collection in the future.

The company offer an excellent package of benefits and generous relocation expenses are available.

24-hour answering service.

Please telephone for a confidential discussion or write to:

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### UNIVERSITY OF SOUTHAMPTON Faculty of Mathematical Studies Computer Studies Group Senior Experimental Officer

Applications are invited for the post in the Computer Studies Group to be established in the Computer Studies Teaching Laboratory currently equipped with PDP-11/34, 11/40 and 11/45 computers. In addition to supervising the day-to-day activities of the laboratory, the person appointed will be responsible for the management, maintenance and documentation of the systems software, and will take a large part

# Could you program for Concorde?

It takes some pretty sophisticated programming to ensure a smooth flight for the world's fastest passenger plane. Concorde's ability to span the globe in a matter of hours, together with its really different technology, poses new problems in provisioning spare parts, flight planning and in maintenance control. But these are all part of a vast range of computer activities supporting every British Airways take-off and landing worldwide. In 1978 we plan to carry 16 million passengers on 200 aircraft to chosen 200 destinations. Translate those figures into computer systems requirements and you will have some idea of how important programmes are to a major international airline. We use IBM and ICL mainframes and a variety of mini computers hooked up in a communications network supporting over 3000 terminals in over 150 countries.

As new equipment and techniques become available the scope and depth of our computer support is continually expanding. Real time programming, on line databases, interactive program development and sophisticated data transmission are all in use; British Airways (an acknowledged industry leader) works on the frontiers of computer technology.

We have vacancies for programmers in any language with at least 12 months applications or software programming experience and the ability to

hold a place in a really dynamic computer environment. Starting salaries of up to £4500 are now being offered. Promotion can lead to more senior positions up to £7200 and beyond. Benefits include extensive sports and social facilities and favourable holiday air travel opportunities. When you plan a career with British Airways you are guaranteeing yourself a stimulating future.

Now you know what is in the air, get in touch. Drop in for an informal chat with one of our Project Managers at The London Interviewing Centre, Knightway House, 20 St John Square, London W.1. (close to Tottenham Court Road Tube Station) on Wednesday 10th May or Thursday 11th May between 1600 and 2000 hours.

or Call 01-897 3246/7 for an early interview

or Write today to:- Head of Recruitment & Selection, British Airways (B15/CW/MK), P.O. Box 10 Heathrow Airport - London, HOUNSLOW TW8 2JA

For new equipment and techniques become available the scope and depth of our computer support is continually expanding. Real time programming, on line databases, interactive program development and sophisticated data transmission are all in use; British Airways (an acknowledged industry leader) works on the frontiers of computer technology.

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airways**

## We've got some good news for an Operations Manager.

## And we've got some bad news.

The good news is that Europe's fastest growing retail company is installing a large computer system—a PDP 11/34 linked to an 11/45 operating under RSXII—and that we're looking for a resourceful and ambitious man or woman to shape the entire future of data processing operations within our organisation. A future which includes the establishment of a nationwide tele-processing network comprising some 300 terminals.

The bad news is that we want to go live through at least 60 stores within the next 6 months. Which will mean motivating and organising a 7-day week operations cover as soon as you get here, and maintaining it throughout the initial stages.

Mind you, if you're the type who likes job interest and involvement, that will read more like good news because it will convince you of our commitment to computerisation and give you some indication of the career opportunity open to you.

As an in-house expert, your growth rate should be as spectacular as ours (we're currently opening 12 new stores a year).

And the good news continues. A salary

of around £6,500 will be supplemented by a £600 car and expenses—not to mention a range of benefits which includes free life assurance, a contributory pension scheme, IVR and a generous staff discount facility.

You will be Wembley-based (relocation assistance will be provided where appropriate) but your need to maintain close contact with your users once the system is in and running will necessitate some UK travel.

If all this sounds good to you—and provided you can bring us a high degree of technical proficiency supported by telecommunications experience ideally with digital equipment—please write, with full details, to: Mr. J. T. Beer, MBI Furniture Centres Ltd., New Stadium Works, North End Road, Wembley, Middlesex. Or phone him on: 01-903 1366.

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Further particulars may be  
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Southampton SO9 5NH, to whom applications should be sent not later than 30 May,  
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Our Head Office is situated in a pleasantly rural part of Surrey near the North Downs, easily reached by the M25/M23. A salary of c.£5,000 + company car is offered plus usual fringe benefits.

Applications to address below or telephone Caterham 48484, Graham Turner Ext. 207,  
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NOTE TO APPLICANTS:- The information contained herein will be regarded as confidential and will not be divulged to anyone without your prior consent. Neither will we approach present or previous employers without your consent.

Locations: (i) desired ----- (ii) considered -----

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Age ----- Date of birth ----- Place of birth -----

Nationality now ----- Nationality at birth -----

Current driving licence? ----- Own car? ----- State of health -----

Present position ----- Salary -----

Position sought ----- Salary required -----

Signature -----

### EDUCATION (including part-time study)

Dates Qualifications

Name, address nature of business	Dates	Position and type of work	Computer hardware software and languages	Starting and final salary
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We are Canada's largest general merchandise retailer, with an annual sales volume in excess of two billion dollars. We operate over sixty retail stores, catalogue centres, distribution centres and over seven hundred offices located from coast to coast. Our data processing expansion programme has created the following openings in our head office, located in Toronto.

### PL1 PROGRAMMERS

Applicants must have a minimum of three years PL1 experience, and have developed strong technical skills and be able to work effectively as a Development team leader. Experience with CICS, System 2000 or other data base management systems is a definite asset. Our team development approach demands good interpersonal skills, demonstrable leadership capabilities and a thorough understanding of structured techniques.

Salary range \$19,000.00 to \$22,000.00 per annum.  
Approx. £8,885 to £10,375 p.a.

### SYSTEMS PROGRAMMERS

Applicants should have at least three years experience in developing and supporting the system software and hardware in a large-scale MVS installation. A detailed understanding of the internals of at least one of MVS, JES2, CICS, System 2000 or PL1 is mandatory. Supervisory experience is a definite asset.

Salary range \$19,000.00 to \$23,000.00 per annum.  
Approx. £8,885 to £10,850 p.a.

Successful applicants will normally possess an applicable degree from a recognised university or equivalent qualification, and have a proven record of jobability.

Personal interviews with Senior Company Representatives will be arranged in London commencing May 8th. Interested candidates are requested to submit immediately in confidence a detailed resume to:

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**Project Managers**

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Continued expansion and development within our clients organisation has created vacancies for capable, self-motivated project people to join its management team. Teams tend to be small but highly effective with total responsibility for design implementation and support of major applications. Specific experience of accounting or marketing systems will be considered an advantage as is a proven track record in project management. These are key appointments within a major bureau, therefore salaries will reflect the importance of the posts.

Subsequent career development is dependent on the individual's ability. Contact: Margaret Stevens

**Technical Author/Software Specialist**

Bucks

A leading, innovative consultancy seek a team person to document operating system software. Solid experience of operating system design (internal) or programming is essential. The successful candidate will determine own future and development of career in this unique job opportunity.

Contact: Jim Baker

**Sales Executive**

Sheffield-Locaster Area

A well established and successful manufacturer of mini-computer systems, designed for the commercial and end-user market, seek to increase their remarkably effective sales team in the north. Applicants must have a proven track record either in the sale of similar equipment or in a support type position. In any event, the successful candidate will be one who is dynamic, self-starting, and with a sound d.p. background.

Contact: Mike Cremer

**Programmer/Analyst**

South Essex

Salary negotiable Our Client is a well established manufacturing company with an expanding world-wide market. Due to this expansion, we now wish to recruit a programmer/analyst with 18 months' O.S. COBOL experience. Experience in BOMP or FINANCIAL applications would be an asset. However, training will be given whenever needed.

In addition to a chance to get involved in analytical design work, we give self-motivated D.P. professionals a progressive career path. The company also offers re-location assistance, where applicable, a subsidised canteen, and an excellent pension scheme.

Contact: Mike Cremer

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

**JAMES BAKER ASSOCIATES, International Personnel Consultants**  
18 Maddox Street, London W1. Tel: 01-491 4478

**Programmer Analyst**

Bucks

A rapidly expanding commodity production company are seeking a programmer analyst to manage their data processing activities, ranging from development of new systems, to total responsibility for small team. The applications will be commercial and financial involving absolute liaison with oil sectors of the company. Applicants must be thoroughly conversant with commercial and/or financial systems, preferably on mini-computers, ideally PDP/RSTS, and have strong leadership qualities.

Excellent salary and benefits coupled with management status. Contact: Mike Cremer

**AUSTRALIA**

We heard this week that another group of d.p. emigrants have been successfully placed by our associate company in Sydney, within a short time after arrival. In fact, several of them, had two or three offers from which to choose.

If you are a d.p. professional (a.g. programmer, analyst, computer engineer, or more senior grade) with over three years experience and the determination to start a new life in Australia JBA is your vital link to that important job you need when you get there. We'll pull the ground work for you and open up the contacts so that interviews can be lined up as soon as you arrive.

Contact Mike Cremer and have a chat about how JBA can help.

**Mini Experience? U.K.  
Pioneering interests?  
Eager to Prove Your Ability?**

**KRATOS**  
Instem Limited — Stone, North Staffs

**Programmers to Project Leaders £3500-£6000  
Process Control and Technical Development Project Staff — North Midlands**

A wide variety of development support staff from Junior Programmers to Project Leaders are required to work on a wide variety of micro processor and mini-computer based systems for industrial and laboratory automation applications worldwide. Applicants should preferably be Graduates. Experience of Minis in a real time or on line environment will be beneficial. Machines of particular interest to us are DEC, Data General, Intel etc, using ASSEMBLER or FORTRAN. Equally any RSX experience would be particularly attractive. Please telephone urgently either Mrs. Hillary Prosser on Stone 832131, or Don Philip on 0782 623665.

Hillary Prosser  
Instem Ltd.  
Mount Rd., Industrial Est.  
Stone  
Staffs ST15 8LX  
Stone 2131 (0785 83)

Don Philip  
EMS Group  
0782-623665

Consultants: John Wood and Don Philip

# Kuwait - EMS & Inter-Consult

## The opportunities you've all been waiting for!

Kuwait's own Inhouse Consultancy bring you 90% of the opportunities available in Kuwait today

**Project Leaders to £15000 + Accom**  
We seek Senior Analysts, capable of team control, whilst at the same time handling experience of at least 2 years' O.S. COBOL programming. Applications are mainly Accounting and Inventory Controls and other commercial systems. Candidates should be educated to a minimum HND standard and have no children. A driving licence would be especially advantageous. Motivated, career conscious managerial level candidates are assured of excellent employment prospects. We intend carrying out early interviews for these positions. Please telephone today for an application form.

**Analysts & Programmers — Numerous Banks to £12000**

Hardware requirements vary mainly between IBM and NCR with languages being especially useful. Kuwait at present has both new development work with first-time computer users at a wide range of banks, to established users initiating large increased on-line project development. Equally, junior positions are also available for commercially experienced staff with 18 months' or more experience. Telephone today for application form.

**O&M Consultants/Microfilming C £11000**

Ability to set up a microfilming unit, organising the hiring of preparation staff and training them where necessary, as well as undertaking user feasibility will be important. The job will be autonomous from the main consultancy group, requiring a sound microfilming knowledge with the ability to make correct decisions when the occasion arises. Other O&M related projects will also be undertaken after the unit is operating, effectively, therefore offering a good progressive career opportunity.

**Arab Nationals — Banking**

Preference will be for candidates with a recognised qualification from HND upwards. Banking experience would be particularly useful, especially in an on-line environment. Young Analyst/Programmers are being sought in addition, particularly with PDP experience. Arab Nationals with alternative machine experience will equally be considered. Senior staff will work with Consultants currently developing a computerised system and will help during installation, putting relevant experience to use to ultimately take over project management of the system.

## CMC Programmers — Negotiable

A newly formed Turnkey Systems Group in Kuwait need experienced CMC programming staff, preferably with basic systems knowledge to rapidly assist with the design and programming of client application systems. Ability to manage other group staff in CMC Programming specifically would be especially advantageous. A driving licence will be essential. Candidates can be single or married, but must have no children. The company has already gained only sales and now looks motivated next to help them increase their marketing successes and expand the group.

## IBM Analysts & Programmers to £12000

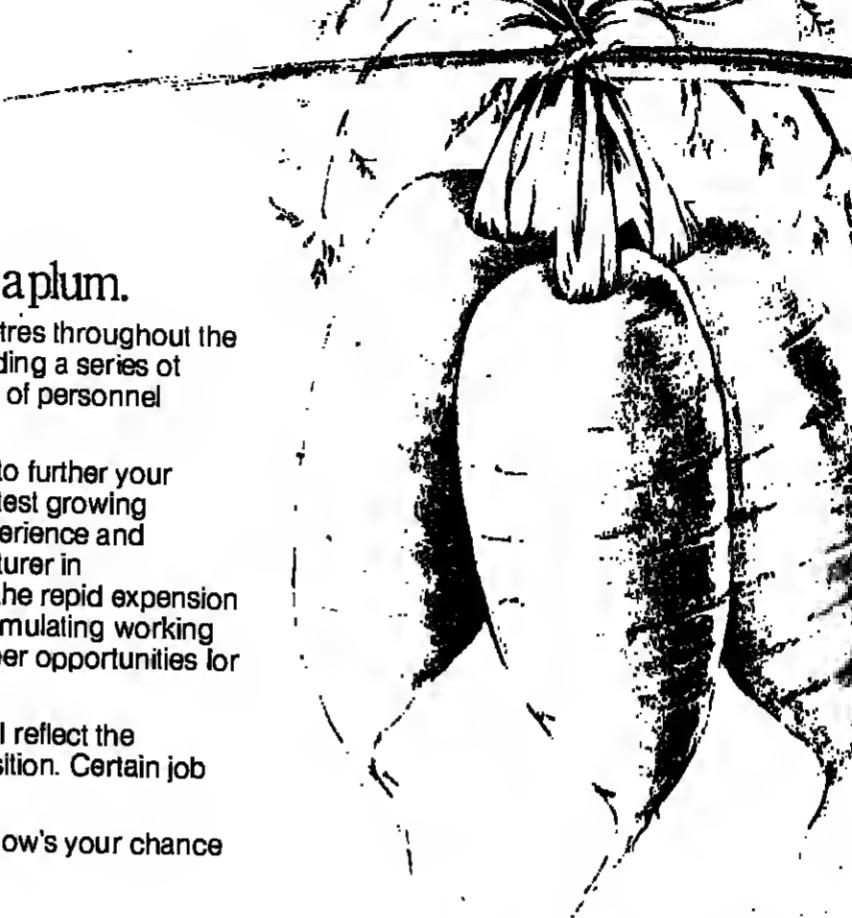
One of the largest trading groups in the Middle East has additional vacancies for experienced IBM development staff to assist with the maintenance and enhancement of a wide range of existing Accounting and Inventory Systems in addition to preparing new Interfacing systems in a progressive move towards M.I.S. Assistance will be given with accommodation allowances and furniture loans. Equally, concessionary car purchase facilities will be offered as an attractive fringe benefit.

## IBM Senior Systems Analysts £12000

We seek a candidate, preferably with some Oil Industry experience to assist with the maintenance and development of inventory systems. Extensive CICS and DL/1 work is involved. Subsequently, a minimum 2 years practical experience of CICS is sought and at least 1 year DL/1. Analysts should have a sound knowledge of Database. Ability to work in a consulting role will be advantageous.

EMS CONSULTANTS LTD.  
11 LOWE STREET  
NEWCASTLE UPON TYNE  
NE1 1HZ  
TELEPHONE 091 231 7100  
TELEX 80000

# ON THE 9th MAY WE'LL BE DANGLING CARROTS.



## You could end up with a plum.

On the 9th May in regional centres throughout the country, Systime Limited is holding a series of informal interviews for a variety of personnel in computing.

This is an unusual opportunity to further your career in one of the world's fastest growing computer companies. Our experience and reputation as a major manufacturer in mini-computers, together with the rapid expansion plans ahead, ensures both a stimulating working environment and excellent career opportunities for the future.

Salary conditions and bonus' all reflect the company's assured market position. Certain job functions include company car.

The carrot has been dangled, now's your chance to taste one of these plums:

Informal interviews are being held from 5.00-8.30pm on 9th May, 1978 at the following hotels:

### London

The Bloomsbury Centre Hotel  
Coram Street  
LONDON WC2

Richard Pinkham  
Systime Limited  
Centenary House  
98 Camden High Street  
LONDON NW1 0LT  
Tel: 01-388-7921

Roy Green  
Systime Limited  
Globe House  
Atkinson Road  
Urmston  
MANCHESTER M31 1AD  
Tel: 061-747-7424

### Manchester

The Grand Hotel  
Ayloun Street  
MANCHESTER

Head office:  
SYSTIME LIMITED  
Peter Wilkinson/Gordon Higgs  
Concourse Computer Centre  
432 Dewsbury Road  
LEEDS LS11 7DF  
Tel: 0532 707411 or 707261

### Leeds

The Queens Hotel  
City Square  
LEEDS

Andy Coleman  
Systime Limited  
Kimberley House  
47 Vaughan Way  
LEICESTER  
Tel: 0533-22212

### Leicester

The Holiday Inn  
St. Nicholas' Circle  
LEICESTER

David Watt  
Systime Limited  
Standard Buildings  
94 Hope Street  
GLASGOW G2  
Tel: 041-221-6152

### Glasgow

The Albany  
Bolhwell Street  
DUBLIN

John More  
Systime Limited  
32 Molesworth Street  
DUBLIN  
Ireland  
Tel: Dublin 767635

### Dublin

Royal Dublin  
Upper O'Connell Street  
DUBLIN

Central Support Operations

Central Support Operations are based at Systime's head office in Leeds and consist of three departments:

**Technical Support.** Responsible for the development, maintenance and support of basic software, including operating systems, compilers and development aids.

**Applications Support.** Concerned with the development and support of Systime application packages which will continually extend to new application areas.

**General Services.** Responsible for the bureau operation, software distribution, training and technical administration.

## Technical Support

**Consultant — Communications.** Applicants should have extensive experience in the communications field, preferably including projects involving DEC equipment.

**Support Specialist.** Applicants should have a minimum of five years computer experience with a bias towards operating systems or compilers. Experience of DEC operating systems or Basic Plus would be advantageous.

**Systems Engineers.** Applicants must have a minimum of three years experience, including a period as analyst/programmer.

**Applications Programmers.** Applicants must have a minimum of one years commercial programming experience, preferably in an interactive systems environment.

## General Services

**Department Manager.** This is a senior management appointment and applicants must have had at least two years proven management experience. Responsibilities will include the recruitment, career development and reporting procedures for all personnel associated with the bureau, training and software administration. A company car and assistance with relocation expenses will be provided.

**Training Officers.** Additional personnel are required to develop training programmes for Systime and client staff. Courses will be relevant to programming (Basic Plus), operating systems, computer operations management and systems design.

All positions offer competitive salaries and a generous bonus scheme.

For all central support positions, applicants should write or telephone Bev Stevens at Systime head office or if preferred applicants may attend the informal interviews at the hotels indicated, where their interest will be discussed and reported.

SYSTIME

Oct 1978

# COMPUTE OUR NUCLEAR FUTURE AT RISLEY, NUCLEAR CENTRE FOR THE U.K.

**British Nuclear Fuels Limited** is one of the world's largest suppliers of nuclear fuel services and is currently engaged in a major expansion programme. This is creating a rising demand for all kinds of computer applications, personnel and equipment — and coincides with transfer of mainstream computing to an ICL 2980. At Head Office we are meeting the challenge by expanding both Computer Services Section supporting company-wide systems development and users in financial, commercial, scientific planning and design departments; and the Computer Policy Section supporting Company Management decisions on hardware and software. Opportunities exist for:

## SENIOR PROGRAMMERS £4000 — £5290 p.a.

The Computer Services Section requires programmers with the ability to design, progress and implement scientific and commercial systems in both batch and interactive environments, working as team leaders, maintaining standards and meeting targets. At least 4 years programming and a working knowledge of FORTRAN and COBOL are essential; knowledge of BASIC, APL and use of time-sharing bureaux is desirable.

## EXPERIENCED PROGRAMMERS £2750 — £4290 p.a.

To work under the guidance of the Senior Programmer. Applicants should have at least 18 months experience.

For the above posts in programming, qualifications to HNC (or, for certain posts, degree) standard are required.

## TECHNICAL OFFICERS £4620 — £5570 p.a.

(Currently under review) The Computer Policy Section requires suitably experienced computer professionals with Honours Degrees to investigate all factors (technical, commercial, economic and operational) of new technology — from mini to communications, APL to databases. Applicants must have an interest in all aspects and experience in several.

All posts are open to male and female applicants. Salaries within the ranges stated are currently under review for implementation April 1978. Excellent conditions of service include 4 to 4½ week holiday plus 10½ day statutory and privilege holidays, an attractive superannuation scheme and assistance with relocation.

Head Office at Risley is within the nuclear centre, which is part of Warrington New Town where first-class rentable housing is available. It also enjoys superb Motorway access to Merseyside, Greater Manchester and some of the most attractive areas of the North West.

**NO STAMP NEEDED!** Simply fill in and post this coupon now to: Staff Officer, British Nuclear Fuels Limited, FREEPOST, Risley, Warrington WA3 1BR.

Please send Application Form for the post of: Senior Programmer/Experienced Programmer/Technical Officer (delete posts that do NOT interest you)

NAME .....  
ADDRESS .....

**BNFL**

British Nuclear Fuels Limited  
at the heart of nuclear power

Rai 137/78/J170

## Computer Operations Manager

North West

£2500+car

A subsidiary of a multi-national group wishes to recruit an operations manager for its large computer centre in the North West of England. The task is to:

motivate, direct and co-ordinate 80 operations staff engaged in three shift working

provide on-line computing services

help the manager of the computer centre evolve data processing within the group (current developments are in the field of on-line simulations and mini-computers).

The requirement is for someone who has successfully managed the operations function, including data preparation and data control, in a medium (or larger) IBM mid-range installation in a tele-processing environment.

Preferred age middle thirties. Starting salary will be negotiable at around £2500. There is a car provided. Promotion prospects are well defined and unusually good.

Please write in confidence for a job description and an application form to: David Pocock, Price Waterhouse Associates, Southwark Tower, 39 London Bridge Street, London SE1 9SY, quoting MCE/884.

## Computing in Education Administration

Two vacancies exist at senior level for:  
**Senior Analyst/Programmers**  
£21/2-£25044 - £5797 p.a. Inc.

Applications will normally be received by 1st June 1978. Interviews will be held in early summer. For further information contact Mr. Alan D. Smith, Personnel Officer, 10th Fl., 100, Kingsgate, London NW1 2BG. Closing date May 25th.

**Middlesex Polytechnic**

## SENIOR PROJECT MANAGER

J. H. Sankey & Son Ltd. is a national builders' merchant company with over 100 branches and a nine-figure turnover. The company is embarking on a comprehensive development plan that cannot encompass hardware from micros to mainframes. A pilot scheme is just starting in two branches using a POP 11/34 for order entry, involving stock control, purchasing and financial systems. This is a ground floor opportunity for a person to take responsibility for all group systems development.

The person appointed must be a self-starter with several years' experience of commercial programming and systems design. This experience must include leading or losing one major project from start to finish. Experience of PDP-11 and RSTS and BASIC is essential.

The job is based at Wombridge but considerable travel within the U.K. will be involved at times.

The appointment commands a good salary and company car and full range of employee benefits.

Application in writing stating background and experience and present salary should be sent in confidence to:

E. A. W. Smith, Group Personnel Director  
J. H. Sankey & Son Limited  
Station House, Harrow Road, Wembley, Middlesex HA8 6DB

# SANKEY'S

THE BUILDERS MERCHANT

## CITY OF BIRMINGHAM POLYTECHNIC

Department of Computer Studies  
and Mathematics

## LECTURER II / SENIOR LECTURER IN COMPUTING

Applicants should be graduates and possess a relevant degree in computing or practical experience of Systems Programming.

Salary scales:

Lecturer II £3744-£4095

Senior Lecturer £5023-£6507 (bar)

£6909

including 1976 and 1977 supplements.

Further details and application forms

to be returned by 16th May 1978

from the Personnel Officer (CVW), City of Birmingham Polytechnic, 7, Park, Perry Barr, Birmingham B42 2UE.

## NEWCASTLE-UPON-TYNE POLYTECHNIC

Computer and Mathematics Department

## SYSTEMS ANALYST (Administration)

Requirements for the design, development and maintenance of computer systems and related Management Services in association with the Academic, Research, Financial and General Administrations of the Polytechnic. The postholder will be a professionally qualified and experienced analyst with an administrative background, will be expected to have particular expertise in the area of planning and management control systems.

Copies of instructions to tender

for the post of Systems Analyst

can be obtained from the Appointed Officer, Staff Department, 13

Clarendon Place, Dublin 8.

Latest date for receipt of tenders

is 24th May 1978.

Further details and application forms

to be returned by 16th May 1978

from the Personnel Officer (CVW), City of Birmingham Polytechnic, 7, Park, Perry Barr, Birmingham B42 2UE.

## COMPUTER TERMINAL EQUIPMENT

Tenders are invited for the supply, installation, delivery and service of computer terminal and communication monitors at the Traffic Dept., 171 Christchurch Place, Dublin 8.

Copies of instructions to tender

for the post of Computer Terminal Equipment

can be obtained from the Appointed Officer, Staff Department, 13

Clarendon Place, Dublin 8.

Latest date for receipt of tenders

is 24th May 1978.

Further details and application forms

to be returned by 16th May 1978

from the Personnel Officer (CVW), City of Birmingham Polytechnic, 7, Park, Perry Barr, Birmingham B42 2UE.

# MYRIAD OPERATIONS

Computer Personnel Consultants

## BURROUGHS in SURREY

### Junior Operators to Shift Leaders — To £5500

A leading British service organisation is currently seeking additional operations personnel to play a substantial role in the future expansion of their computing facilities: a major upgrade being planned within the next year.

You will have a successful operations background to date, and will be keen to pursue an active career in the future. Full training will be given, so if Burroughs hardware is currently alien to you this is a rare opportunity to work on some sophisticated and powerful kit.

You should, of course, be available to work shifts, for which a generous allowance is included in the salaries offered. These will be in the range £3500-£6500, dependent entirely upon your experience, and are supported by valuable fringe benefits.

## SENIOR OPERATOR

Shift Leader Designate

CIRCA £4300

HERTS

An ideal opportunity exists for an IBM DOS/VSE operator with a minimum of 18 months' experience to develop their career with this American backed manufacturing company.

Running under a two shift system the medium sized installation is in the process of developing several major projects. This position presents a challenge to keen, energetic operators with shift leader potential to demonstrate their ability, and for those with the aptitude, encouragement is shown for progression into programming.

Apart from the generous salary, a comprehensive range of other benefits are offered.

## ICL in ESSEX

3 shifts

£Negotiable

A rapidly expanding computer services organisation is currently seeking additional computer OPERATORS at both JUNIOR and SENIOR levels, i.e. 6 months' experience.

Installed hardware comprises a medium ICL 1900 system running under GEORGE II. You are sure of an interesting workload processing a variety of batch and on-line applications.

This is a young company with progressive ideas. Therefore opportunities to further your career are excellent if you are prepared to adapt and develop your current experience.

An attractive range of fringe benefits accompany the generous commencing salary and successful applicants will enjoy working in a pleasant friendly environment.

24-hour answering service

Please telephone for a confidential discussion or write to:

30 Fleet Street London EC4Y 1AA  
01-353 0981

## Reckitt & Colman Limited

U.K. Leisure Division

## Systems Analyst

C. £6,500

The newly formed Leisure Division of Reckitt & Colman Limited is based at Winsor & Newton Limited in Wembley, Middlesex. The Division is mainly involved in the manufacture and supply of art and craft materials and includes the world famous names of Winsor & Newton, Reeves, Dryden and Charles Pegg.

A Systems Analyst is required to work on a complete review of all systems in the operating companies. A minimum of two years systems experience is required but the ability to work on own initiative and liaise at all levels within the division are of paramount importance. There will be deep involvement in projects from feasibility through to implementation.

Please telephone for further details and an Application Form or alternatively, send full colour details to: Amex Personnel, 150 Boundary Road, London, SW12 8HG.

## AMES PERSONNEL

TELEPHONE: 01-767 0611

A subsidiary of a multi-national group wishes to recruit an operations manager for its large computer centre in the North West of England. The task is to:

motivate, direct and co-ordinate 80 operations staff engaged in three shift working

provide on-line computing services

help the manager of the computer centre evolve data processing within the group (current developments are in the field of on-line simulations and mini-computers).

The requirement is for someone who has successfully managed the operations function, including data preparation and data control, in a medium (or larger) IBM mid-range installation in a tele-processing environment.

Preferred age middle thirties. Starting salary will be negotiable at around £2500. There is a car provided. Promotion prospects are well defined and unusually good.

Please write in confidence for a job description and an application form to: David Pocock, Price Waterhouse Associates, Southwark Tower, 39 London Bridge Street, London SE1 9SY, quoting MCE/884.

**B**  
**C**  
**P**

## BIRMINGHAM

Paul Mitchell  
111 New Street  
MANAGER

up to £7,000. Programmes/Analyst.

Asst with Data General systems programming. Assume command for all O.P. including supervision design and implementation. Manufacturing retail distribution experience preferred.

## ANALYST/PROGRAMMER

up to £6800

Manufacturer Software House seek experienced personnel to implement user written systems. RPG II essential.

## SENIOR ANALYST & PROGRAMMER

£8-25000

Centrally situated manufacturing distribution centre, currently enhancing its existing Hardware to 1902T, to develop on-line and batch systems. A programming background in the case of analysis and COBOL, PL/I or PLAN essential for the programmers.

## COVENTRY

Bruce James  
Coventry Point, Market Way

## ANALYST/PROGRAMMER

£6,000

With 3 years' background and experience of COBOL and DATABASE for new development with Coventry Company.

## PROGRAMMER

£4,800

COBOL ICL installation — In-house position — company are presently expanding. 2/3 years experience required. Excellent opportunity for ambitious programmer. Promotion to Analyst/Programmer or straight Analyst in near future.

## LEEDS

Iain Rogers  
73/75 Albion St.

## SYSTEMS ANALYST

£8,000

With excellent insurance background working for a fast moving Bureau environment. Honeywell Level 66/20 — COBOL background. Supervision of staff and user liaison. Promotion prospects are excellent.

## PROGRAMMER

£4,800

With a minimum of 2 years' experience of COBOL ICL for 1902 installation. Developing on-line order entry system.</p

## PROGRAMMER / ANALYSTS to £6500 p.a.

**BASIC  
AMERSHAM**  
+ significant benefits

Our client is an independent subsidiary of a £200 million British Group. The company is in the process of turning growth plans into reality, consequently excitement, enterprise and challenge are the order of the day. This all DEC OEM Systems House offers services covering total turnkey implementations, software sales and timesharing bureau, based on 2 x DEC PDP 11/70's and 4 DEC PDP 11/35's.

The company needs to raise its headcount with self-starters who have experience of BASIC PLUS on DEC equipment. Whether you are an experienced Analyst or only have 1 year's programming behind you, they can offer real career prospects in a dynamic environment. Working in a small, identifiable team, you will be involved in a project from start to finish, developing commercial, e.g. accounting, stock control and order processing systems.

The 25+ development group enjoy excellent working conditions and large company benefits.

Call DAVID J. HUTCHINSON to discuss these excellent opportunities further on 01-499 4501.

Ref. RW 18/1

## PROGRAMMERS FOR MICRO'S

**BUCKS** to £6,500 p.a.

All the pundits agree, the potential market for microsystems is staggering. Our clients manufacture their own, based on the DEC LSI 11 processor; and with the financial support and credibility of their £200m parent company they are determined to capitalise in the UK. They now wish to build up their software team by recruiting 3 additional programmers.

To fulfill their aims they need to add more DIBOL, FORTRAN and MACRO 11 expertise to the team. Consequently I wish to hear from candidates with 2/3 years or more experience in any of these languages. Successful candidates will work in a technical software department solving problems at a low level through involvement in basic systems design and high level language applications programming. They will enjoy a wide variety of applications.

All the conditions are right for career development; rapidly expanding market, young growing company, financial stability, interesting projects, promotion on merit, attractive salary and working conditions.

Move into micros now and your career could really take off.  
CALL DAVID J. HUTCHINSON on 01-499 4501.

Ref. RW 18/3

**hutchinson-scoggins recruitment**  
10 Dover Street, London W1C 3PH  
Telephone 01-499 4501

## OPERATIONS OPPORTUNITIES in the CITY and BUCKS

A dynamic and fast moving bureau is probably the most invigorating working environment for operations personnel and our clients are just that. This very professional company offers both batch and on-line facilities from 2 computer centres situated in BUCKS and the CITY. Already well established they offer services to both companies within their international parent Group and to many outside users. The department operates a 2 shift system covering weekdays only. Their planned growth has created some real career opportunities for the right people.

IF AFTER READING BELOW, YOU WISH TO APPLY PLEASE WRITE TO DAVID J. HUTCHINSON DETAILING YOUR QUALIFICATIONS AND CAREER TO DATE.

## OPERATIONS MANAGER BUCKS c.£6,000

This person will have total responsibility for the operation of a medium sized installation. Candidates should have the desire to move into junior management and the ability to handle customers. The successful applicant is likely to be aged 26-32 and may have a traditional operations background or be a systems analyst wishing to broaden their career. Relocation will be considered. A full job specification will be available at interview.

## SHIFT LEADERS BUCKS and CITY to £4,250 + 20% S.A.

If you are young, competent and ambitious enough to see yourself moving upwards into operations management within 2 years then please apply. As the senior man in the computer room you will control a small team and play an active part in liaising with customers. Aged around 23/25, preferably with 'A' levels, you should have c 3 years ops. experience including on-line systems. Full training will be given, including programming. Here is an excellent opportunity for personal development.

## OPERATIONS TRAINEE OPERATORS BUCKS and CITY £3-£3,500

+ 20% S.A.

Superb opportunities exist for operators who wish to play a big part in a small team and for bright young people who wish to make their entrée into computing as a trainee operator. Your progress will be up to you. Aged 20-ish you should be alert, able to communicate, and want to take full advantage of the training offered (this includes programming).

**WRITE QUOTING  
REF. NO. RW 18/2  
TO DAVID J. HUTCHINSON**

## Duncan Bransom Recruitment COBOL PROGRAMMERS up to £6.500 plus overtime & profit sharing

### What's it like - working for a firm of consultants?

To start with, life is never dull. You are working steadily all the time with plenty of opportunity for advancing your professional career. With overtime pay and profit sharing, you should be able to add about 25% to your basic salary.

At Duncan Bransom Ltd you will join a team of highly skilled professionals. After a brief orientation period (lasting perhaps about two or three days) you will find yourself on interesting assignments within your existing capacity. Additional training will be provided as required to help you progress through the company.

Naturally you will be expected to be better at your work than the client's own staff and thus the work will only suit those who are highly skilled and also are prepared for plenty of hard work.

Please write or telephone for an application form to:  
Roger Griffiths, Duncan Bransom Ltd.,  
37, Hillcrest Road, Loughton, Essex  
Telephone 01-508 5121

Duncan Bransom Limited



Ref D12

## SOFTWARE PROGRAMMERS

Salary up to £5,000 pa (including supplements)

**Bored with application programming and  
coding sheets or operating?**

Then use your computing ability and personality by joining our Technical Support Group in the Welsh Water Authority's expanding Computer Services Group.

These posts offer further career and technical training and the opportunity to become involved in the varied and interesting aspects of Operational and Technical Support including extensive TP network and the generation and control of new and existing software.

The Group is responsible for all systems software including COMMS MANAGER, MAXIMOP and DRIVER based programs, software and communications performance monitoring and future hardware planning.



These are new appointments in the Authority's rapidly developing central installation. The initial equipment is based upon a 1902T computer with ICL 7502 Intelligent Terminals located at various sites throughout Wales.

Ideally you will need a knowledge of and experience in one or more of the following: COBOL, PLAN, ICL Communications Software, Utilities, ICL Operating Systems.

The posts will be based at Bridgend, Mid Glamorgan. Excellent conditions of service include generous re-location and possible bridging loan finance.

Assistant Personnel Officer (Ref No 157) Welsh Water Authority  
Cambrian Way, Brecon, Powys LD3 7HP Closing Date: 18th May 1978

**WELSH WATER AUTHORITY  
AWDURDOD DWR CYMRU**

## PROGRAMMERS

**RENTOKIL**  
LIMITED

EAST GRINSTEAD

Further programmers of varying experience required for mixed batch/on-line applications on ICL 1902T 64K disc/tape and ICL 1500 configurations using COBOL, PLAN and CDE.

Conditions of employment are generous with fringe benefits which include Contributory Pension Scheme, Profit Share, Free Staff Restaurant and Staff Discount. There is an active Sports and Social Club. Situated on the Kent, Surrey and Sussex borders, East Grinstead offers pleasant and varied living and recreational facilities.

Salary up to £5,000 p.a.

Write or telephone: A. Appleby  
Rentokil House  
Garland Road  
East Grinstead  
West Sussex  
RH18 1DY  
Tel. E.G. (0342) 27171

Worwickshire County Council  
County Engineer's Department

## Senior Computer Officer

P.O.1 (1-5) (£4,800-£5,250) plus Supplementary Allowances. Post No. E41

Applications are invited from suitably qualified persons for the post of Senior Computer Officer who will be responsible for co-ordinating the Computer activities in the various sections of the County Engineer's Department including the R.C.U. Sub-Unit and for programme developments and maintenance, data management and Education. The appointment is on the permanent staff of the Warwickshire County Council and subject to the National Scheme of Conditions of Service as adopted by the County Council and to the Local Government Superannuation Act. The appointment is also subject to the production of a satisfactory medical questionnaire.

Flexible working hours, staff restaurant and facilities, settling in allowance up to a maximum of £700 payable in appropriate cases.

Application forms are available from the County Engineer, P.O. Box 50, Stow Hall, Warwick, CV34 4RJ, to whom they should be returned by not later than Friday, May 26, 1978.

D. G. FULLER  
County Secretary  
Shire Hall, WARWICK

## Computer Operator/Programmers

£3282-£3622 p.a. inc.

(+ Phase III salary award,  
payable from July 1)

Two opportunities to become involved in setting up the reorganized computing service for Middlesex Polytechnic. The Polytechnic has a DECsystem 10 computer, and its Computer Operators/Programmers will be responsible for running the new service for the students and staff of the Polytechnic site in North London. While the main element of the post is operating activities opportunities will arise to train, lead and assist with programming.

You should have good relevant experience of computer operations work, preferably in an industrial environment; possess common sense and an accurate approach to work.

Middlesex Polytechnic

Leading French Bank requires a

## PROGRAMMER

with at least 2 years' experience to help develop their Honeywell based real-time banking system. Previous experience in banking or with real-time systems would be an advantage and a mature attitude essential. Salary £4,000 to £5,000 or more depending on experience. Good staff benefits.

Write full details to:

Staff Manager  
Banque De L'Industrie  
Et Du Commerce  
62-64 Bishopsgate  
London EC2N 4AR  
or telephone Mr. J. Eley  
on 01-582 4941

## PROGRAMMERS

to you

CLOSE ENCOUNTER

of the ONLY kind Contact

VIP

CONSULTANTS

INTERNATIONAL

01-481 3206/49 30967

089 2215

FOR OUT OF THIS WORLD

WALKER-WESTON ASSOCIATES LIMITED  
Specialists in Computer Recruitment  
Woodlands Lower Bristol Road, Bath  
Avon Tel. Bath 317890

## PROGRAMMERS

RENTOKIL  
LIMITED

EAST GRINSTEAD

Further programmers of varying experience required for mixed batch/on-line applications on ICL 1902T 64K disc/tape and ICL 1500 configurations using COBOL, PLAN and CDE.

Conditions of employment are generous with fringe benefits which include Contributory Pension Scheme, Profit Share, Free Staff Restaurant and Staff Discount. There is an active Sports and Social Club.

Situated on the Kent, Surrey and Sussex borders, East Grinstead offers pleasant and varied living and recreational facilities.

Salary up to £5,000 p.a.

Write or telephone: A. Appleby  
Rentokil House  
Garland Road  
East Grinstead  
West Sussex  
RH18 1DY  
Tel. E.G. (0342) 27171

BARR AND STROUD

## PROGRAMMER ANALYST

GLASGOW

We are a well established specialised engineering company with a wide range of precision, optical and electronic products.

We are looking for a Programmer/Analyst to work on Production Control and Bill of Material Systems. The work will involve collaboration in the design and programming of these systems or in the selection and implementation of appropriate packages.

Candidates should have some experience of Factory Control Systems, a knowledge of RPG 11 and the ICL 2903 or 1900 is desirable.

Full details of age, education and experience should be submitted in writing to

The Personnel Manager  
**Barr & Stroud Limited**  
Annesland Glasgow G13 1HZ

## CONTRACT PROGRAMMER

RPG-II, N. LONDON TOP RATES

X-Calibur Computer Services

47 Essex Street, WC2

01-583 6201

01-202 6282

Ext. 120,

quoting reference 267.

Closing date 22nd

May, 1978.

Telephone 01-202 6282

for an informal discussion, or write for full details and an application form, quoting ref. 113. If you are interested in working for a leading company, apply now for Cockfosters Post your letter to class 11, Appointments Office (quote ref. 11), Middlesex Polytechnic, Bounds Green Road, London N11 2ND. Closing date, May 15.

Telephone 01-582 4941

for an interview.

# MANAGEMENT & EXECUTIVE SELECTION

## PROGS and ANALYSTS — where are you?

Contact us. We have the widest choice of career opportunities throughout the U.K. and abroad, offering excellent salaries and prospects. Whatever the field or language, we can help.

*Here is just a small selection:*

### MIDDLE EAST

Programmer: RPG 11, 370/115 to \$18,000 U.S.

### LONDON

Trainee Programmer: Degree level  
Programmer: COBOL Insurance and Banking  
Analyst: Insurance and Banking

to 4½K  
to 5½K  
to 7K

### GLOUCESTER

Programmer: Software Spec.

to 6K

### BIRMINGHAM

Analyst / Programmer

to 5½K

### LEEDS

Jnr. Analyst

to 5K

For a confidential chat about these positions or for professional advice on your next move  
Contact Tony McGrath

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

telephone 01-637 9611

## CUSTOMER ENGINEERS LONDON & W COUNTRY

### £6-8K package

Experienced mini and mainframe engineers can take a big step forward by joining this world renowned international manufacturer.

As a member of a strong team of professionals within a multi-national organisation, your career prospects would be excellent with full training given on company products. A regular review of ability and salary provides an incentive, and ensures that effort and talent are realistically rewarded.

The main responsibility of these positions is the maintenance of various computer systems and their associated peripherals to provide the reliable and efficient service for which the company is well known. Engineers concerned with large mainframe systems will be resident on site whereas those servicing smaller systems will be mobile. To be capable of these demanding roles you will need to have had at least four years' mainframe or two years mini computer and peripheral maintenance experience and have the ability to communicate with customers at all levels.

Excellent benefits are given by this international company. If a challenging position offering substantial rewards interests you —

Contact Peter Gorton

### MANAGEMENT & EXECUTIVE SELECTION

## If our terminals are so good why do our salesmen have to be so good to sell them?

### Sales Executives

Because the market we've chosen is big, expanding... and tough. Raytheon Cossor's terminal systems are sophisticated, designed for the most demanding computer users. To demonstrate the improvements they can bring to an installation requires a thorough understanding of the client's environment. And since many of our users operate IBM mainframes, IBM itself is one of our prime competitors. That alone means our sales executives have to be rather special.

Their success so far can be judged by the programmable PTS 100. It has become one of the world's most widely-used display terminals, with over 50,000 installed and the number still growing. Now we have the new PTS 1200 distributed processing system. And we need further senior sales staff to help repeat the success of the PTS 100, on which it is based.

Write giving brief career details or telephone for an application form to:  
W. D. Barlow, Raytheon Cossor Data Systems, The Pinnacles,  
Harlow, Essex CM19 5BB. Telephone: (0279) 26862.

**Raytheon Cossor Data Systems**

### OEM Sales Manager

A growing number of independent suppliers are incorporating Raytheon Cossor hardware in their systems. We are creating the new post of OEM Sales Manager to develop this business into a significant outlet for PTS equipment. Existing clients are in the U.K., Norway and Denmark. Extensive travel in these and other European countries is envisaged.

Candidates must have knowledge of mainframes, minicomputers and programmable terminals. They must know the OEM business thoroughly, from either the selling or buying side. They will have the energy and initiative to develop, then follow through, sales strategies appropriate to the PTS range.

Initially, salary and commission should provide annual earnings of at least £11,000. A car will be provided.

JBA

### Systems Analyst

London up to £7,000 Schlumberger  
Our client, part of the international Schlumberger Group who specialise in services to the oil and exploration industry, have an opportunity for a Systems Analyst to join a well established development team. Applicants should have had about five years in data processing with the early part spent as a programmer preferably in an IBM installation. Experience with users and in the design of commercial applications is essential. Salary according to experience. Generous fringe benefits including L.V.'s International travel.

Contact: Jim Baker

### \*System Support Analysts †Development Programmers

\*North of Birmingham & †Dorset to £6,000 + car An export award-winning manufacturer of data-entry systems have opportunities for graduate programmers to contribute to major development projects. Applicants must have at least 18 months mini/micro application experience gained preferably in a technical environment. Commercially minded analysts will be involved with customers, identifying problems and be responsible for resolving them quickly and effectively. These positions are well rewarded and offer a challenge to professionals wishing to enhance their expertise.

Contact: Margaret Stevens

### Systems Analyst

Midlands c. £6,000 A large international engineering organisation has an immediate vacancy for a Systems Analyst to work on the development of financial and manufacturing applications. Candidates should have at least two years in the design of commercial systems preferably with real-time or on-line techniques. A sound IBM programming background would be an advantage. The company are looking for a person with potential who will be able to take more responsibility in the near future. Excellent salaries and usual large company benefits. Relocation expenses.

Contact: Jim Baker

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

**JAMES BAKER ASSOCIATES, International Personnel Consultants**  
16 Maddox Street, London W1. Tel: 01-491 4478

### HOLLAND

Technical Authors up to £12,000+ Applications software, data communications, or digital electronics. Any of these skills plus a flair for writing will be of interest to our clients. Contact: Mike Craamer

### MIDDLE EAST

Programmer to Project Leaders up to £15,000 (Net) A variety of long-term and very interesting positions for basically sound IBM professionals with commercial experience. All positions are married accompanied (pref no children) and all housing is free. If you are interested, whatever your experience, we'd like to hear from you. Contact: Mike Craamer

### Analyst/Programmers

c. £5,500 Our client, a well known manufacturing company, is looking for several Analyst/Programmers to join their expanding development teams. Several years as a COBOL programmer is essential together with experience in the design of at least one commercial application. Above average salaries and opportunities. Generous benefits, including assistance with relocation.

Contact: Jim Baker

### Technical Advisors

Herts to £5,400 + car allowance Excellent opportunities have arisen with a small business systems manufacturer for experienced software/commercial support persons to provide liaison and technical aid to a wide ranging customer base. Candidates should have a minimum of one year's implementation or post sales support experience of small commercial computer systems. Since the key function is client liaison appointees will be personable individuals with the ability to communicate effectively with technical managers.

A substantial starting salary will be paid to attract high calibre people. Contact: Margaret Stevens

Because the market we've chosen is big, expanding... and tough. Raytheon Cossor's terminal systems are sophisticated, designed for the most demanding computer users. To demonstrate the improvements they can bring to an installation requires a thorough understanding of the client's environment. And since many of our users operate IBM mainframes, IBM itself is one of our prime competitors. That alone means our sales executives have to be rather special.

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Harlow, Essex CM19 5BB. Telephone: (0279) 26862.

## We're big enough to have the contacts; small enough to care about you

The many permanent vacancies we have on our register include:

1. BUSINESS SYSTEM SALESMEN, preferably with some account background. Based Croydon, basic salary + expenses + company car + realistic commission structure means your first year's earnings are in excess of £10K. Ref: IC/190

2. COBOL PROGRAMMERS (2 years' experience) — £4.2K. LEAD PROGRAMMERS (3 years' experience) — £5.8K. SENIOR PROGRAMMERS (4 years' experience) — £6K. for City-based multi-national group using IBM 370 under DOS. Ref: EL/171

3. REAL TIME PROGRAMMERS, minimum 18 months' experience. Date General (pref: Fortran and/or Assembler would help). £8K + all the perks of a rapidly-expanding young company in West London. Ref: KG/231

4. THIS WEEK'S FEATURED JOB:  
DP MANAGERSHIP awaits System 3 RPG II ANALYST PROGRAMMER. After initial trial period promotion to DPM will qualify for a salary of £6K+. Outstanding opportunity! London W1. Ref: CK/169

5. ANALYST AND/OR ANALYST-PROGRAMMERS with minimum of 4 years' experience in any machine and any language. WE ARE IN CONTACT WITH SOFTWARE HOUSES, LARGE MULTINATIONAL ORGANISATIONS, AND SMALL DEPARTMENTS. They all need you desperately! So call us now.

FREELANCERS CONTRACTS EVERYWHERE. IMMEDIATE STARTS, LONG TERM (UP TO A YEAR) AND SHORT TERM (3 MONTHS). OUR RATES ARE RIDICULOUSLY GENEROUS! WE ALSO HAVE TOP-CLASS CONTRACTS PLANNED TO START OVER THE NEXT 3 MONTHS— SO GET YOUR NAME ON OUR REGISTER, EVEN IF YOU'RE NOT IMMEDIATELY AVAILABLE.

THINKING OF TURNING FREELANCE? THERE'S NO RISK WITH US. WE OFFER SECURITY, CONTINUITY, TAX ADVICE AND TOP MONEY. CALL US WITHOUT OBLIGATION, NOW!

IT DOESN'T MATTER IF YOU DON'T FANCY THE ABOVE VACANCIES, WE'LL GO OUT OF OUR WAY TO FIND YOU SOMETHING THAT SUITS YOU. EVEN IF YOU'RE NOT THINKING OF CHANGING JOBS JUST YET, FILL IN THE COUPON AND GET YOUR NAME ON OUR REGISTER. THAT WAY, YOU COULD WELL FIND THAT EXTRA SPECIAL JOB WITHOUT EVEN TRYING.

Give IAN COX a ring on: 01-837 0105 during weekdays, or 01-272 2794 in the evenings or at weekends, or fill in and send us the coupon below.

NAME \_\_\_\_\_ TEL. (HOME) \_\_\_\_\_  
ADDRESS \_\_\_\_\_ (OFFICE) \_\_\_\_\_

CURRENT POSITION \_\_\_\_\_ SALARY \_\_\_\_\_  
POSITION REQUIRED \_\_\_\_\_ SALARY REQD. \_\_\_\_\_

LOCATION/AREA IN WHICH YOU WISH TO WORK \_\_\_\_\_

PAST EXPERIENCE \_\_\_\_\_

MACHINES \_\_\_\_\_

OP. SYSTEMS \_\_\_\_\_

LANGUAGES \_\_\_\_\_

APPLICATIONS \_\_\_\_\_

YEARS EXPERIENCE IN DP \_\_\_\_\_

TO FREEPOST 26 ACS LTD., ACS HOUSE, 42-48 GT. PORTLAND ST., LONDON W1.  
TELEPHONE: 01-837 0105 or 272 2794. Evenings/Weekends

Applied Computing and Software Limited **ACS** 

ACS House, 42-48 Great Portland Street, London W1.

VI: 1 o/s IT/dp

# Central Computing Consultants

## Production Analyst

Berkshire

£ neg.

A major manufacturing company based in Berkshire is embarking on a development programme involving the addition of an ICL 2900 to their current 1900 installation.

In line with this development, they wish to recruit an experienced Systems Analyst to design and implement a large production system over the next 2-4 years. Suitable candidates must have experience in production systems and have seen one project through to implementation.

The company offer excellent career opportunities in addition to employment bonuses.

CW/1

## RPG II or COBOL Programmers

Southern Ireland

Our client, a manufacturing company accessible to Dublin, requires experienced programmers for their up-to-date installation.

Currently programmes are being written in RPG II, but our client requires a minimum of 2½ years' programming experience in either RPG II or COBOL. Applicants will be given training where necessary. Systems experience awaits the successful programmer who has a good commercial manufacturing background.

The company offers these outstanding opportunities to secure very interesting work with great scope for the successful candidates who have the initiative to progress within an expanding organisation. In addition to a competitive salary, and excellent working conditions on a new installation, there is life assurance and pension scheme. Assistance will be given with relocation costs where applicable.

CW/4

## Cobol Programmers

London

A major international company situated in London require PROGRAMMERS for their London office.

The installation, an IBM 370, is shortly to be upgraded to cope with the demand from international and local users.

We would like to hear from programmers who have the following experience:

- \* 2 years' IBM COBOL
- \* Knowledge of DOS/VMS
- \* Knowledge of VASM

Future projects are all T.P. based with the introduction of Database techniques, which will offer you a challenging and rewarding future. Salaries are negotiable but will not be less than you would expect for your experience.

CW/7

## IMS - TSO - MVS Programmers

£4200-£7200

One of the country's leading retail companies have committed themselves to an exciting and ambitious expansion programme. They require experienced PROGRAMMERS at all levels to help implement new systems. Therefore if you have experience of IMS, TSO, MVS we would like to hear from you!

The company can offer the usual large company benefits and the opportunity of working in one of the most advanced installations in the country.

CW/2

## PROGRAMMERS & ANALYSTS

£4.5K - £8K

Consider the benefits of

- \* Working in West London
- \* Working on communications systems
- \* Progression to project leadership
- \* Variety of job contact
- \* Programme development through VDU's

If you are a programmer or an analyst and have had exposure to commercial applications (on any hardware), our client would be very interested to learn more about you and discuss your future. They are a well-established software house and offer a career path based on real time earning above average salaries and large company benefits.

Projects are divided into small teams and there are many opportunities for men and women with management potential to gain experience in project leadership at a very early stage.

CW/6

## 1900 COBOL

London

£5K + mortgage scheme

We have been retained by our client, a large multi-national insurance company, to recruit a number of PROGRAMMERS for their offices in EC2.

Candidates will have at least 18 months' experience on 1900 systems under George 1+, and will have worked on a variety of commercial and financial systems. Direct experience of insurance application would be advantageous.

The company offer excellent prospects to the right people, which includes a mortgage scheme.

CW/8

KINGSTON: 44 Wood Street, Kingston upon Thames, Surrey, England. Telephone 01-549 3212 (24 hours) Telex 27950

DUBLIN: Canberra House, 24 Lower Leeson Street, Dublin 2. Telephone 762170/762188/785692 Telex 30742



Get in touch



## GHANA SYSTEMS ANALYST

Ashanti Goldfields Corporation (Ghana) Ltd.

A vacancy exists for a Systems Analyst with in-depth knowledge and extensive practical experience of Systems Design and Programming in Plan for Disk and I.C.L. 1900 Driver. This appointment will involve:

Preparation of detailed systems and programming specifications  
Guidance, advice and counsel to programming staff

Training of local staff in practical systems design and analysis

The installation comprises an I.C.L. 1901T Computer, 48K, with E.D.S. 60 and local visual display terminals with termiprinters. The successful applicant will head the project to redesign existing magnetic tape systems to operate effectively in a disk and communications environment. Ideally, past experience will have been gained in a small installation where the applicant has been fully involved at all stages of the systems, programming and operational implementation. Experience of working overseas and possession of formal computing qualifications will be an advantage.

Starting salary about £11,000 p.a. (equivalent) at present rate of exchange.

Conditions of service are in line with modern thinking and include:

- \* People with experience of banking systems ranging from programmers with 12 months' experience through to consultants with 7 years' plus experience.
- \* Mini Computer specialists with 1-5 years' experience to join a team working on the applications software for international distributed processing systems.
- \* Knowledge of DEC computers or RTL2.
- \* Programmers and Senior Programmers with experience of RPG.

Please write in confidence to:—  
A. Orchard, Group Personnel Manager,  
LORHO LIMITED,  
Cheapside House, 138 Cheapside, London, EC2V 6BL.

## VIDECOM (Henley-on-Thames)

VIDECOM LTD are manufacturers of the world's first multi-host computer terminal system with an installed base worldwide. Due to continued rapid expansion we urgently require experienced personnel.

### PROGRAMMERS

Experience in Assembler level and minicomputer programming preferred and evidence of successful programming is needed in senior posts.

Based at the Company's Headquarters at Henley-on-Thames, these posts offer a unique opportunity to work on design and development of software for the exciting new communications equipment and offer excellent career advancement prospects. Salary is negotiable, depending upon background and experience and conditions include all benefits normally associated with a successful international company.

Write, giving brief career details including present salary, to Miss H. Barker.

**VIDECOM LIMITED**  
NEWTOWN ESTATE  
READING ROAD  
HENLEY-ON-THAMES  
OXON, ROB 1HG

## MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

## APPLICATIONS CONSULTANTS

CITY & WEST LONDON

To £7500++

Due to the continued growth, in England, of this major U.S. Bureau several vacancies now exist for Applications Consultants. The Company market a range of powerful software products for use primarily as management aids. Based at either their City or West London offices applicants will receive thorough training before being given responsibility for client accounts and advising the marketing team in preparation of business proposals.

### A ★★ PROGRAMMERS ★★

If you are a programmer with at least 18 months' experience in COBOL RPG or FORTRAN then we have top positions for most systems in most areas.

### B. ★★ ANALYSTS ★★

Urgently required — Min 18 months' commercial systems.

Vacancies throughout U.K.

C.

Many other positions available throughout the U.K. for experienced staff.

Gryphon Computer Recruitment —

Eastgate House, Chiswick, London, E6

Contact Chris or Olive on 0289 222165

## OPPORTUNITIES IN GERMANY

A major software house with offices in Munich and Cologne has reformed us to recruit for their next phase of expansion.

They look for co-workers with alert and creative minds and willing to co-operate in maintaining a tension free environment.

The applicants must have some knowledge of German and good professional skills within the range of the following fields:

Process Applications, Mini-Computers, Systems Programming, Organisation DP consultancy, Application programming and DP experience especially in IBM, OS/DOS, MINI COMPUTERS and TP, ASS, PL/I, COBOL DBOMP, and DB.

Female applicants are welcome.

Salaries from £9,000-£16,000 p.a. 6 weeks' annual holiday, assistance with relocation.

Application should be addressed to:

Shaun de Warren, CHARTERPORT Ltd., 10 Laffey Road, London, W.12.

## GROWTH OPERATORS & SENIOR OPERATORS BEDS.

Up to £4650 plus overtime

ICL 1900 & 2900 installation.

Due to exceptional growth our client will be installing an ICL 2900 System in August to operate alongside a 192K 1903T. This means new opportunities and first-class career development prospects for ambitious young operators.

The operating system is Sargon II+, which will also be run on its 2900 using D.M.E. MAXIMOP & DATAVIEW are supported for terminal users during the daytime.

A three-shift system operates during the week with ample opportunities for overtime during the weekend.

THE COMPANY

Our client is a medium-sized engineering company employing 2,000 people. They have modern premises in rural Bedfordshire, not far from the M1 Motorway and easily accessible from population centres such as Luton and Bedford. Housing is attractive and plentiful in the area and the company will provide generous assistance with relocation costs where appropriate.

Please write or phone Mr. Johnson, Personnel Officer.

## West Yorkshire Metropolitan County Council Traffic Unit

### SENIOR TECHNICIAN/PROGRAMMER

TELE: 0423 222302 or 0423 222303 up to 1000 hours minimum of 0800-1800 hrs.

To apply for these positions please telephone Sylvia Walton or write to:

**Castle Computer Services Limited**  
109 High Street, Birstall, Leeds, LS4 1BW. Phone: (0542) 71611.

In the preparation of programs which will be used in the computer based West Yorkshire Urban Traffic Control system to be installed in Leeds based on 1900 or similar classification in an appropriate engineers or computing service department.

Applicant for this post may be required to obtain a Clearance from the Home Office.

Salary: £2000-£2500 per annum.

For further information contact Mr. John Johnson, Personnel Officer.

Telephone: 0423 222302 or 0423 222303 up to 1000 hours minimum of 0800-1800 hrs.

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